FIG.1

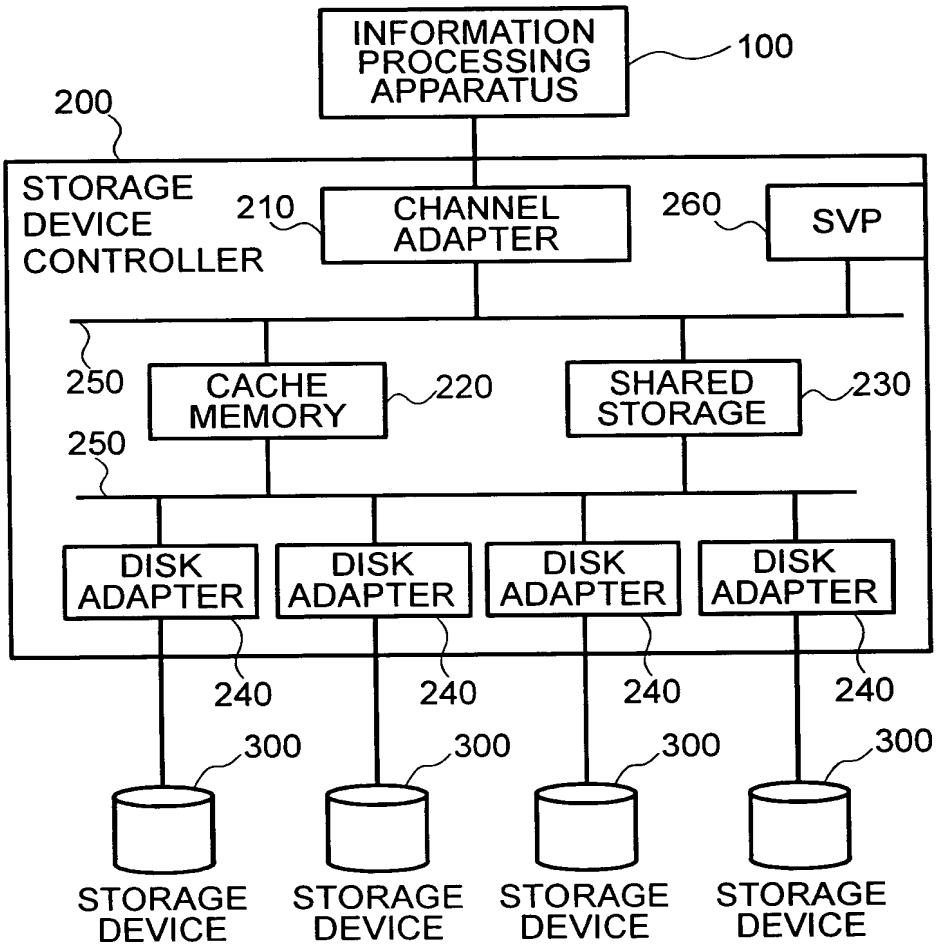

INFORMATION PROCESSING APPARATUS
100
200
STORAGE DEVICE CONTROLLER
210
CHANNEL ADAPTER
260
SVP
250
CACHE MEMORY
220
SHARED STORAGE
230
250
DISK ADAPTER
DISK ADAPTER
DISK ADAPTER
DISK ADAPTER
240
240
240
240
300
300
300
300
STORAGE DEVICE
STORAGE DEVICE
STORAGE DEVICE
STORAGE DEVICE

FIG.2

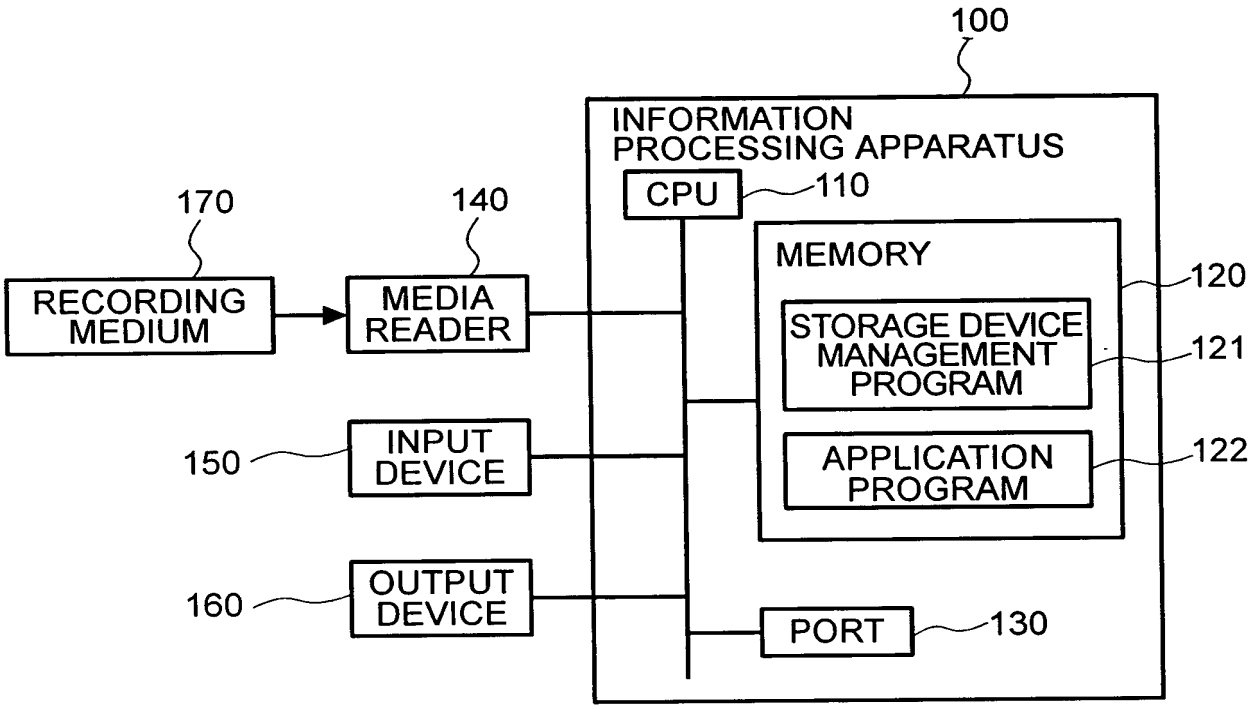

100
INFORMATION PROCESSING APPARATUS
CPU
110
MEMORY
120
STORAGE DEVICE MANAGEMENT PROGRAM
121
APPLICATION PROGRAM
122
170
RECORDING MEDIUM
140
MEDIA READER
150
INPUT DEVICE
160
OUTPUT DEVICE
PORT
130

FIG.3

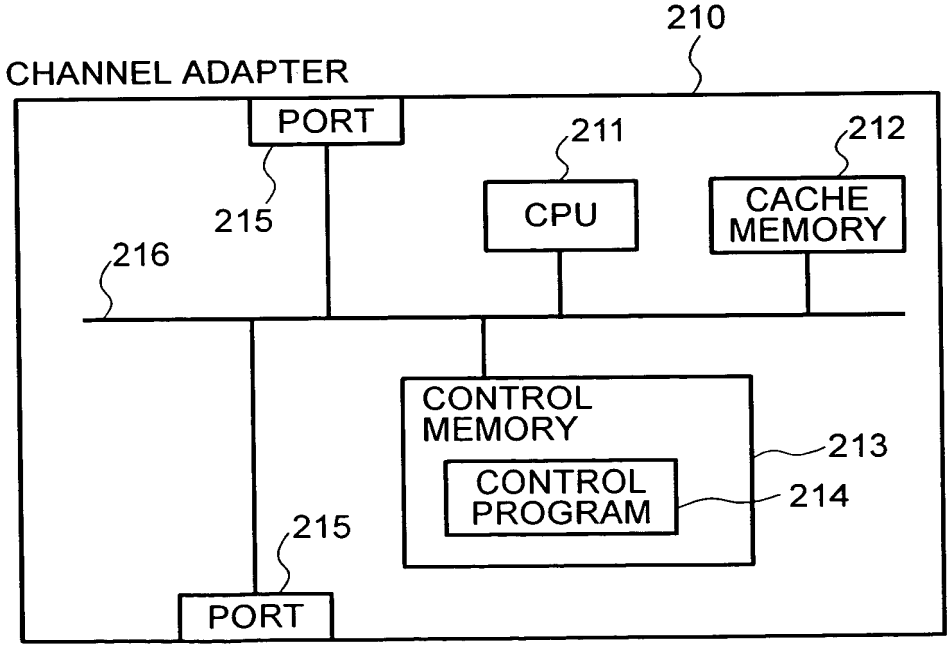

210
CHANNEL ADAPTER
PORT
215
211
CPU
212
CACHE MEMORY
216
CONTROL MEMORY
213
CONTROL PROGRAM
214
215
PORT

FIG.4

SHARED STORAGE 230

CONSISTENCY GROUP MANAGEMENT TABLE 231

CONSISTENCY GROUP NO.	BATCH SPLIT RECEIVING FLAG
0	ON
1	OFF
2	OFF
3	OFF
⋮	⋮

PAIR MANAGEMENT TABLE 232

PAIR	MAIN VOLUME	SUB VOLUME	PAIR STATE	CONSISTENCY GROUP
A	1	2	SPLIT	0
B	3	4	PAIRED	0
C	5	6	SPLIT	1
D	7	8	SPLIT	1
⋮	⋮	⋮	⋮	⋮

FIG.5

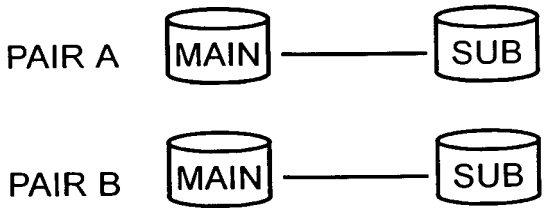


FIG.6

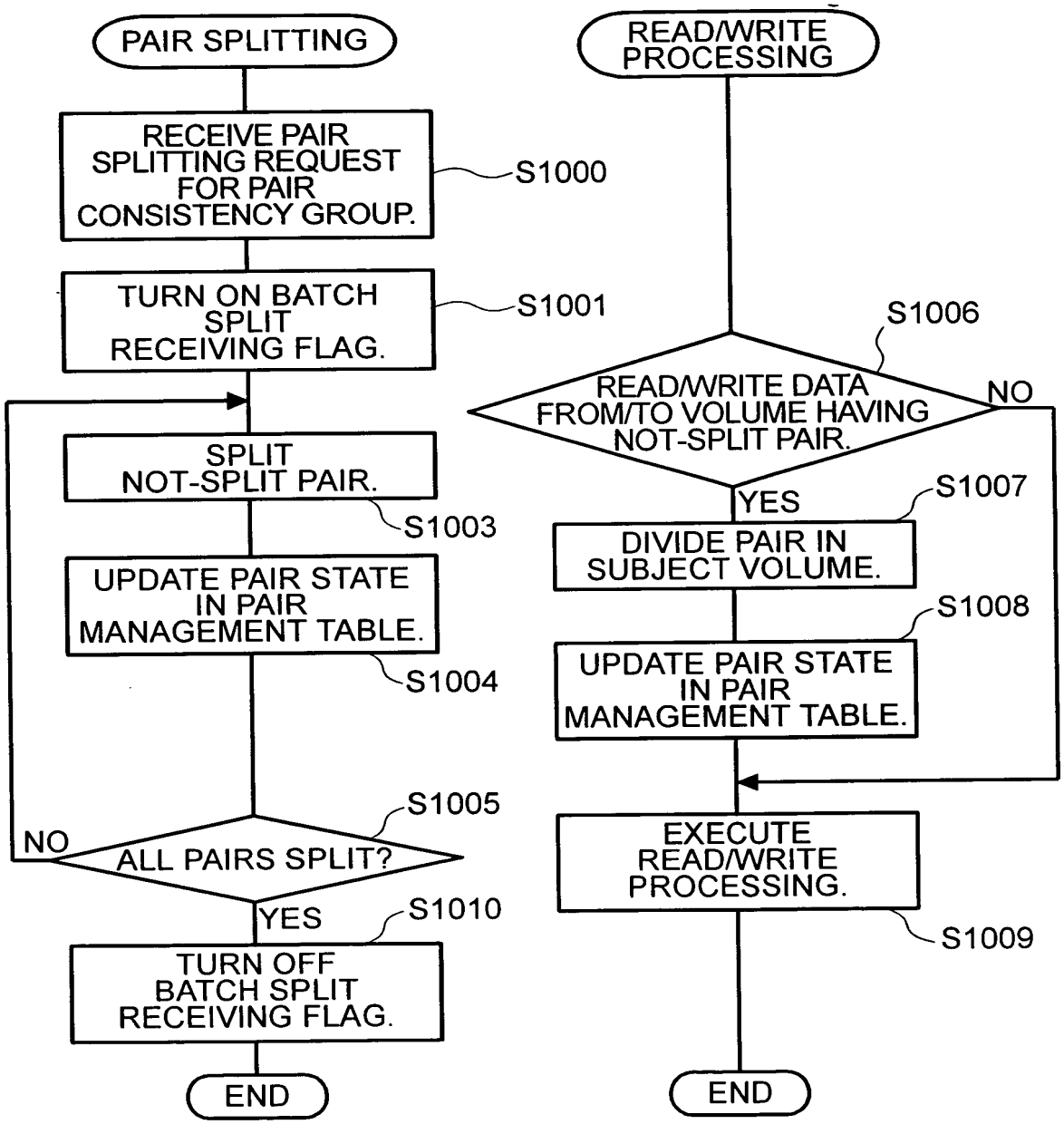
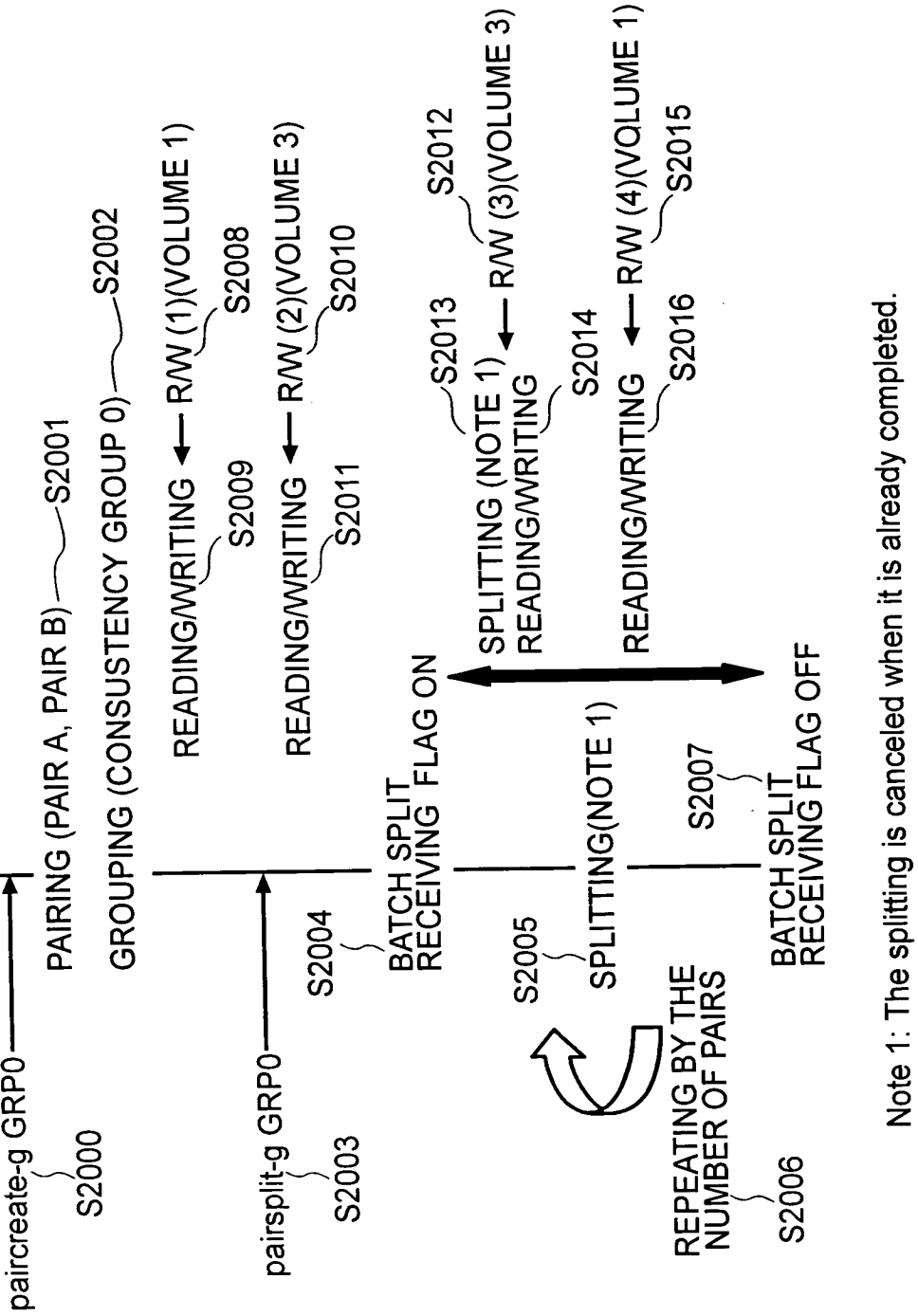

PAIR SPLITTING
RECEIVE PAIR SPLITTING REQUEST FOR PAIR CONSISTENCY GROUP.
S1000
TURN ON BATCH SPLIT RECEIVING FLAG.
S1001
SPLIT NOT-SPLIT PAIR.
S1003
UPDATE PAIR STATE IN PAIR MANAGEMENT TABLE.
S1004
S1005
NO
ALL PAIRS SPLIT?
YES
S1010
TURN OFF BATCH SPLIT RECEIVING FLAG.
END
READ/WRITE PROCESSING
S1006
READ/WRITE DATA FROM/TO VOLUME HAVING NOT-SPLIT PAIR.
NO
YES
S1007
DIVIDE PAIR IN SUBJECT VOLUME.
S1008
UPDATE PAIR STATE IN PAIR MANAGEMENT TABLE.
EXECUTE READ/WRITE PROCESSING.
S1009
END

FIG.7



Note 1: The splitting is canceled when it is already completed.

FIG.8

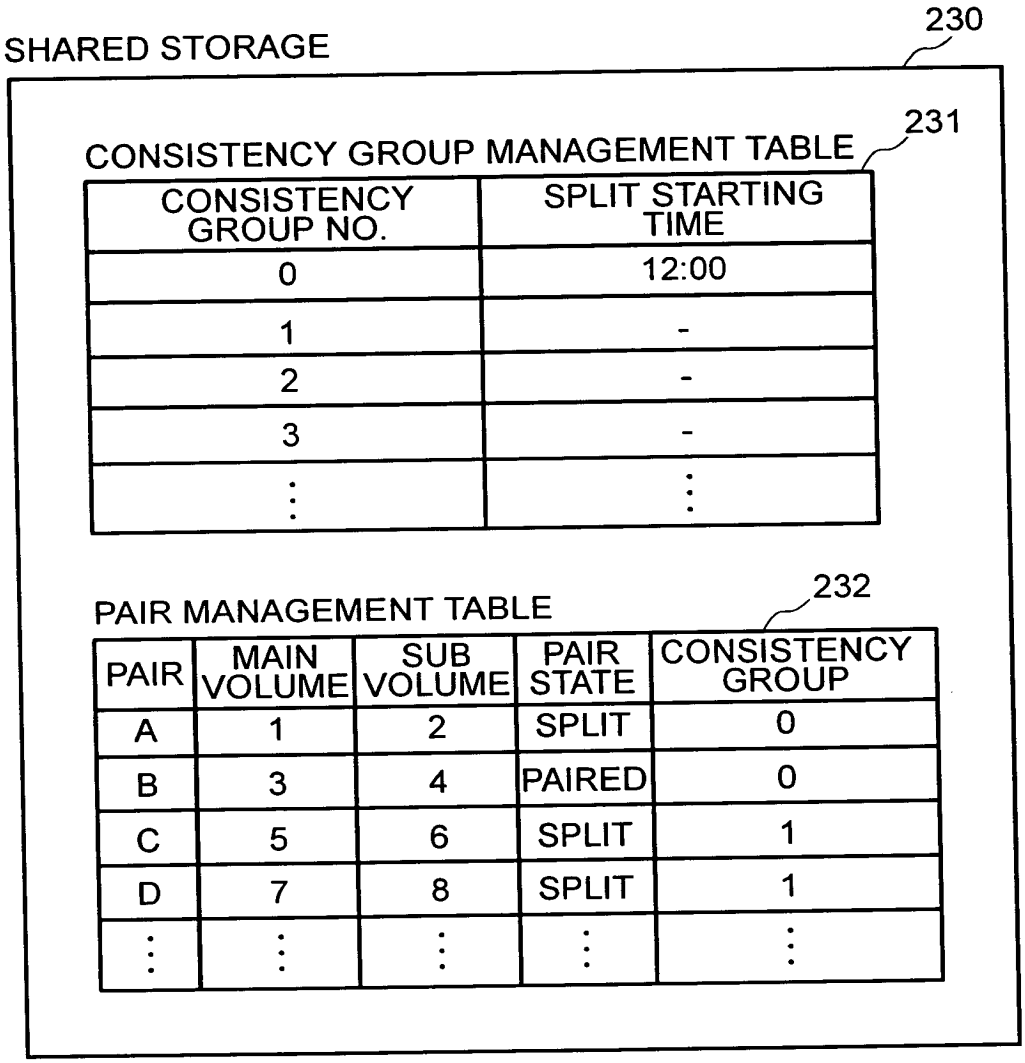
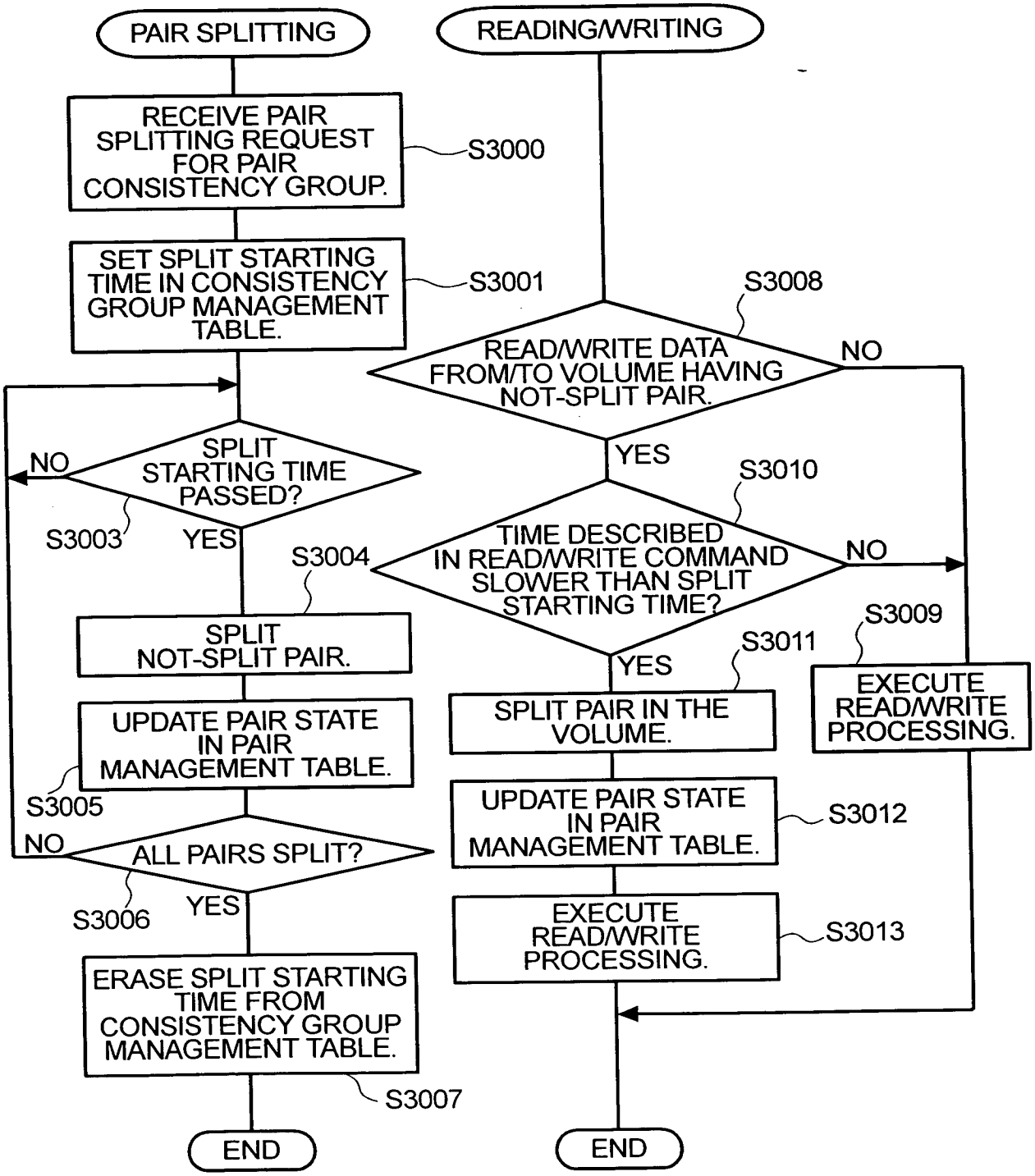

SHARED STORAGE
230
CONSISTENCY GROUP MANAGEMENT TABLE
231
CONSISTENCY GROUP NO.
SPLIT STARTING TIME
0
12:00
1
-
2
-
3
-
PAIR MANAGEMENT TABLE
232
PAIR
MAIN VOLUME
SUB VOLUME
PAIR STATE
CONSISTENCY GROUP
A
1
2
SPLIT
0
B
3
4
PAIRED
0
C
5
6
SPLIT
1
D
7
8
SPLIT
1

FIG.9


PAIR SPLITTING
READING/WRITING
RECEIVE PAIR SPLITTING REQUEST FOR PAIR CONSISTENCY GROUP.
S3000
SET SPLIT STARTING TIME IN CONSISTENCY GROUP MANAGEMENT TABLE.
S3001
S3008
READ/WRITE DATA FROM/TO VOLUME HAVING NOT-SPLIT PAIR.
NO
YES
SPLIT STARTING TIME PASSED?
NO
S3003
YES
S3010
TIME DESCRIBED IN READ/WRITE COMMAND SLOWER THAN SPLIT STARTING TIME?
NO
S3004
S3009
SPLIT NOT-SPLIT PAIR.
S3011
YES
SPLIT PAIR IN THE VOLUME.
EXECUTE READ/WRITE PROCESSING.
UPDATE PAIR STATE IN PAIR MANAGEMENT TABLE.
S3005
UPDATE PAIR STATE IN PAIR MANAGEMENT TABLE.
S3012
NO
ALL PAIRS SPLIT?
S3006
YES
EXECUTE READ/WRITE PROCESSING.
S3013
ERASE SPLIT STARTING TIME FROM CONSISTENCY GROUP MANAGEMENT TABLE.
S3007
END
END